

IN THE CLAIMS

1-3. (Canceled)

4. (Currently amended) A storage operation management program according to claim [[3]] 18, which further includes:

~~a step of acquiring information of said storage; and~~
~~a step of code for judging whether or not said storage~~
~~can set the data area of the replication source or the data~~
~~area of the replication a copy destination volume exists~~
~~having said feature of said created or selected copy source~~
~~volume, based on in accordance with said second request and~~
~~said prestored relationship between said created or selected~~
~~copy source volume and said information of the data area and~~
~~with information of said storage.~~

5. (Currently amended) A storage operation management program according to claim [[3]] 18, which further includes:

~~a step of code for retrieving a route capable of~~
~~connecting a storage device having the data area of the~~
~~replication created or selected copy source volume and a~~
~~storage device having the data area of the replication created~~
~~or selected copy destination volume; and~~

~~a step of~~ code for acquiring information of said route and judging whether ~~or not~~ replication of data of the ~~data~~ area of the replication created or selected copy source volume to the data area of the ~~replication~~ created or selected copy destination volume is possible by use of said route ~~in accordance with~~ based on said information of the ~~data area~~ created or selected copy source volume and based on said information of said route.

6. (Currently amended) A storage operation management program according to claim 18, further comprising: for ~~operating and managing replication of a data area inside a storage or among a plurality of storages, comprising:~~

~~a step of acquiring information of data areas managed;~~
~~a step of~~ code for acquiring information of a route for connecting a storage device having a ~~data area of a~~ replication said created or selected copy source volume to ~~[[and]] a storage device having a data area of a replication~~ said created or selected copy destination volume when ~~replication is operated with one of said data areas as the data area of the replication source and the other as the data area of the replication destination; and~~

~~a step of confirming information of said route when write occurs to the data area of the replication source;~~

~~a step of confirming information of said route in response to a replication start request from the data area of the replication source to the data area of the replication destination;~~

~~a step of code for judging whether ~~or not~~ connection of said route for connecting the ~~data area of the replication created or selected copy source volume~~ to the ~~data area of the replication created or selected copy destination volume~~ is made through a different route in response to said information of the ~~data area of the replication created or selected copy source volume~~ and information of a communication line forming the route; and~~

~~a step of giving the storage an instruction of replication of the data area of the replication source to the data area of the replication destination by connecting said different route.~~

7. (Currently amended) A storage operation management program according to claim 6, further comprising: ~~for operating and managing replication of data areas inside a storage or among a plurality of storages, comprising:~~

~~a step of acquiring information of said data areas,~~
~~a step of acquiring an operation condition of the~~
~~replication operation when the replication is operated with~~
~~one of said data areas as the data area of the replication~~
~~source and the other as the data area of the replication~~
~~destination,~~

a step of code for judging existence/absence of omission
of data stored in a storage area in accordance with
information of the ~~data area of the replication~~ created or
selected copy source volume, the operation condition of the
replication and the operation condition of the storage area,
and

~~a step of updating data of the storage area acquiring~~
~~updating data in accordance with said judgment.~~

8. (Currently amended) A storage operation management
program according to claim [[3]] 18, which further ~~includes~~
comprising:

~~a step of~~ code for judging whether or not a different
copy destination volume ~~data area~~ can be ~~changed as~~
substituted for the ~~replication~~ created or selected copy
destination volume ~~as to the data area of the replication~~

~~destination to the data area of the replication source of said storage.~~

9-17. (Canceled)

18. (New) A storage operation management program executed on a computer for operating and managing replication of a volume inside a storage device or among a plurality of storage devices, the program comprising:

code for receiving a first request for a copy source volume based on information indicating a feature of said copy source volume;

code for one of creating and selecting said copy source volume based on said information;

code for receiving a second request for a copy destination volume; and

code for one of creating and selecting said copy destination volume to have said feature of said copy source volume, based on said second request, based on a prestored relationship between said copy source volume and said information, and based on pairing information indicating that said copy destination volume has a pairing capability of forming a replication pair with said copy source volume, said

pairing information being specified by one of a user and an application.

19. (New) A storage operation management program according to claim 18, further comprising code for selecting one of said plurality of storage devices from which to create or select said copy destination volume, said selected storage device being different from the storage device having said created or selected copy source volume; wherein said code for creating or selecting said copy destination volume, creates or selects said copy destination volume from said selected storage device.

20. (New) A storage operation management program according to claim 18, further comprising code for performing a copy function from said created or selected copy source volume to said created or selected copy destination volume.

21. (New) A storage operation management program according to claim 18, wherein said pairing information includes a use policy of said copy destination volume indicating that said copy destination volume is not constrained to be a copy source volume, and wherein said

pairing information includes a pairing indicator indicating that said copy destination volume is a possible replication destination for pairing with said copy source volume.

22. (New) A storage operation management program executed on a computer for operating and managing replication of a volume inside a storage device or among a plurality of storage devices, wherein when executed, the program causes the computer to perform a method comprising the steps of:

receiving a first request for a copy source volume based on information indicating a feature of said copy source volume;

creating or selecting said copy source volume based on said information;

receiving a second request for a copy destination volume;

creating or selecting said copy destination volume to have said feature of said copy source volume, based on said second request, based on a prestored relationship between said copy source volume and said information, and based on pairing information indicating that said copy destination volume has a pairing capability of forming a replication pair with said copy source volume, said pairing information being specified by one of a user and an application; and

setting a route capable of connecting a storage device having the copy source volume and a storage device having the copy destination volume based on said feature of the copy source volume.

23. (New) A storage operation management program according to claim 22, wherein the method further comprises the step of selecting one of said plurality of storage devices from which to create or select said copy destination volume, said selected storage device being different from the storage device having said created or selected copy source volume; and wherein said step of creating or selecting said copy destination volume, creates or selects said copy destination volume from said selected storage device.

24. (New) A storage operation management program according to claim 22, wherein the method further comprises the step of performing a copy function from said created or selected copy source volume to said created or selected copy destination volume.

25. (New) A storage operation management program according to claim 22, wherein the method further comprises the steps of:

acquiring information of a route for connecting a storage device having said created or selected copy source volume to a storage device having said created or selected copy destination volume; and

judging whether connection of said route for connecting the created or selected copy source volume to the created or selected copy destination volume is made through a different route in response to said information of the created or selected copy source volume and information of a communication line forming the route.

26. (New) A storage operation management program according to claim 25, further comprising the step of judging existence/absence of omission of data stored in a storage area in accordance with information of the created or selected copy source volume, the operation condition of the replication and the operation condition of the storage area.

27. (New) A storage operation management program according to claim 22, further comprising the step of judging

whether or not a different copy destination volume can be substituted for the created or selected copy destination volume.

28. (New) A storage operation management program according to claim 22, wherein said pairing information includes a use policy of said copy destination volume indicating that said copy destination volume is not constrained to be a copy source volume, and wherein said pairing information includes a pairing indicator indicating that said copy destination volume is a possible replication destination for pairing with said copy source volume.

29. (New) A storage operation management program executed on a computer for operating and managing replication of a volume inside a storage device or among a plurality of storage devices, wherein when executed, the program causes the computer to perform a method comprising the steps of:

receiving a first request for a copy source volume based on a feature of said copy source volume, and based on first pairing information indicating a use policy of said copy source volume and indicating that said copy source volume is

capable of forming a replication pair with a copy destination volume;

creating or selecting said copy source volume based on said feature and said first pairing information;

receiving a second request for a copy destination volume;
and

creating or selecting said copy destination volume to have said feature of said copy source volume based on said second request, based on a prestored relationship among said copy source volume and said feature, and based on second pairing information indicating that said copy destination volume has a pairing capability of forming a replication pair with said copy source volume, said second pairing information being specified by one of a user and an application..

30. (New) A storage operation management program executed on a computer for operating and managing replication of a volume inside a storage device or among a plurality of storage devices, wherein when executed, the program causes the computer to perform a method comprising the steps of:

receiving a pair generation request for a copy source volume for which a volume identifier, a predefined use policy, and a pairing capability thereof are stored in a volume

information table with a relationship to each other and to a storage capacity of the copy source volume, a read/write frequency predetermined for the copy source volume, a performance indicator for the copy source volume, and a reliability indicator of the copy source volume, wherein said pair generation request includes said volume identifier;

referring to a storage information table holding a relationship between a storage device and a storage policy;

determining, based on said step of referring to the storage information table, whether a storage device exists that has a storage policy of forming a pair with said copy source volume;

when it is determined that a storage device exists that has a storage policy of forming a pair with said copy source volume, determining from the volume information table whether the storage device has a volume having a pairing capability;

when it is determined that the storage device has a volume that has a pairing capability, determining from the volume information table whether the volume that has said pairing capability has a storage capacity, a read/write frequency, a performance indicator, and a reliability indicator that at least approximate the storage capacity, read/write frequency, performance indicator, and reliability

indicator of the copy source volume in the volume information table;

when the volume that has said pairing capability has a storage capacity, read/write frequency, performance indicator, and reliability indicator that at least approximate the storage capacity, read/write frequency, performance indicator, and reliability indicator related to the copy source volume in the volume information table,

generating a pairing of said volume, as a copy destination volume, and said copy source volume; and

copying the contents of said copy source volume to said copy destination volume;

when the volume that has said pairing capability does not have a storage capacity, read/write frequency, performance indicator, and reliability indicator that at least approximate the storage capacity, read/write frequency, performance indicator, and reliability indicator related to the copy source volume in the volume information table,

referring to the storage information table additionally holding a relationship between said storage device and space capacity, reliability, and a maximum performance of said storage device;

judging whether the relationship between said storage device and space capacity, reliability, and maximum performance thereof in the storage information table indicates that said storage device has a space area from which a volume can be generated that has a storage capacity, read/write frequency, performance indicator, and reliability indicator that at least approximate the storage capacity, read/write frequency, performance indicator, and reliability indicator related to the copy source volume in the volume information table;

when the relationship between said storage device and space capacity, reliability, and maximum performance thereof indicates that said storage device has a space area from which a volume can be generated that has a storage capacity, read/write frequency, performance indicator, and reliability indicator that at least approximate the storage capacity, read/write frequency, performance indicator, and reliability indicator related to the copy source volume in the volume information table, generating a copy destination volume from the space area that has a storage capacity, read/write frequency, performance indicator, and reliability indicator that at least approximate the storage capacity,

read/write frequency, performance indicator, and
reliability indicator related to the copy source volume
in the volume information table;

generating a pairing of said copy destination volume
and said copy source volume; and

copying the contents of said copy source volume to
said copy destination volume.